INSTRUCTION MANUAL
FOR RTE-8 & RTE-4
BATH/CIRCULATORS

CONSTANT TEMPERATURE BATHS AND CIRCULATORS

IMMERSION COOLERS

REFRIGERATED RECIRCULATING HEAT EXCHANGERS

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NESLAB

Instruction Manual for

RTE-4 and RTE-8 Refrigerated Bath Circulators

I. Unpacking

A. Retain all cartons and packing materials until bath is tested and found in good condition. Transportation companies generally will not honor a damage claim if the cartons are not available for examination.

B. All units are shipped with a dated warranty card. The top portion should remain with the unit. The bottom section must be filled out and returned to Neslab.

II. Description

The RTE-4 and RTE-8 use a full ¼ horse power hermetic refrigeration compressor and have, respectively, a 4 and an 8 liter reservoir. Units are equipped with a circulating pump, proportional temperature controller and stainless steel refrigeration coils.

The unit is designed so that the refrigeration system runs continuously when low temperatures are needed. Temperature control is obtained by cycling the control heater at the desired set point.

The system has a net cooling capability of 400 watts (1360 BTU/hour) at 20°C. The cooling capability increases at higher bath temperatures and decreases as the temperature is lowered. The RTE units have been designed to operate between -30°C and +100°C.

III. Installation

A. Fill the reservoir to within 3/4" of the top plate to insure contact of all the refrigerant coils with the bath fluid. At no time should the bath level be allowed to fall below 2½" of the top plate. Have additional bath fluid on hand to compensate for the volume of any external system.

B. If the system is to be used to maintain temperatures below 8°C, antifreeze solution must be used. Glycol/water mixtures or alcohol are suitable. In general, fluids or mixtures of the lowest viscosity consistent with the operating temperatures desired are preferred. For example, although 40% glycol water mixtures are suitable for temperatures down to 20°C, straight ethyl or methyl alcohol is to be preferred because of the lower viscosity.

- - - - - DO NOT RUN THE BATH DRY - - - - -

C. For models with dual section "Z" pump modification:

The "Z" pump consists of two centrifugal pumps on a single shaft and motor. One pump section is of the conventional force design and the other is a reverse acting suction pump.

The "Z" units are supplied with a stainless steel leveling device used for recirculating fluid to an open container. Both the suction line (located toward the rear of the pump) and the force line accept 5/16" I.D. flexible tubing. When using the leveling device, be sure to adjust the flow control so that the pump output does not exceed the amount of fluid that can be sucked back into the unit. The flow should be adjusted so that the return line occasionally sucks some air into the bath; this will prevent possible overflow.

When used in this manner, the level of the outside bath should be higher than the RTEZ-4 / RTEZ-8 to avoid siphoning action when the circulator is turned off.

D. Connect the unit to a grounded power receptacle of the proper voltage.

IV. Setting Bath Temperature

A. Rotate the small fine control dial to the twelve o'clock position. Rotate the large coarse temperature setting dial to the desired control temperature. The temperature reference setting is the white line located at the nine o'clock position.

B. As the bath approaches the set point temperature, the heat indicator light will cycle. Within a few minutes the bath temperature will stabilize. The fine control adjustment is now used for precise temperature settings. Fine temperature settings should be made with the aid of an external thermometer.

V. Flow Control

A. The flow adjustment knob is located directly in front of the control panel and is clearly labeled. When shipped, the flow is completely turned off. To start flow, turn the knob in a clockwise direction until desired flow is maintained. Full flow is obtained by turning the knob 3½ times in a clockwise direction. Caution: Do not overtighten the adjustment knob in either the open or closed position. When maintaining a constant fluid level in an outside container with the "Z" pump, be sure to adjust the flow so that the suction section of the pump occasionally sucks some air into the bath; this will prevent possible overflow.

VI. Operation

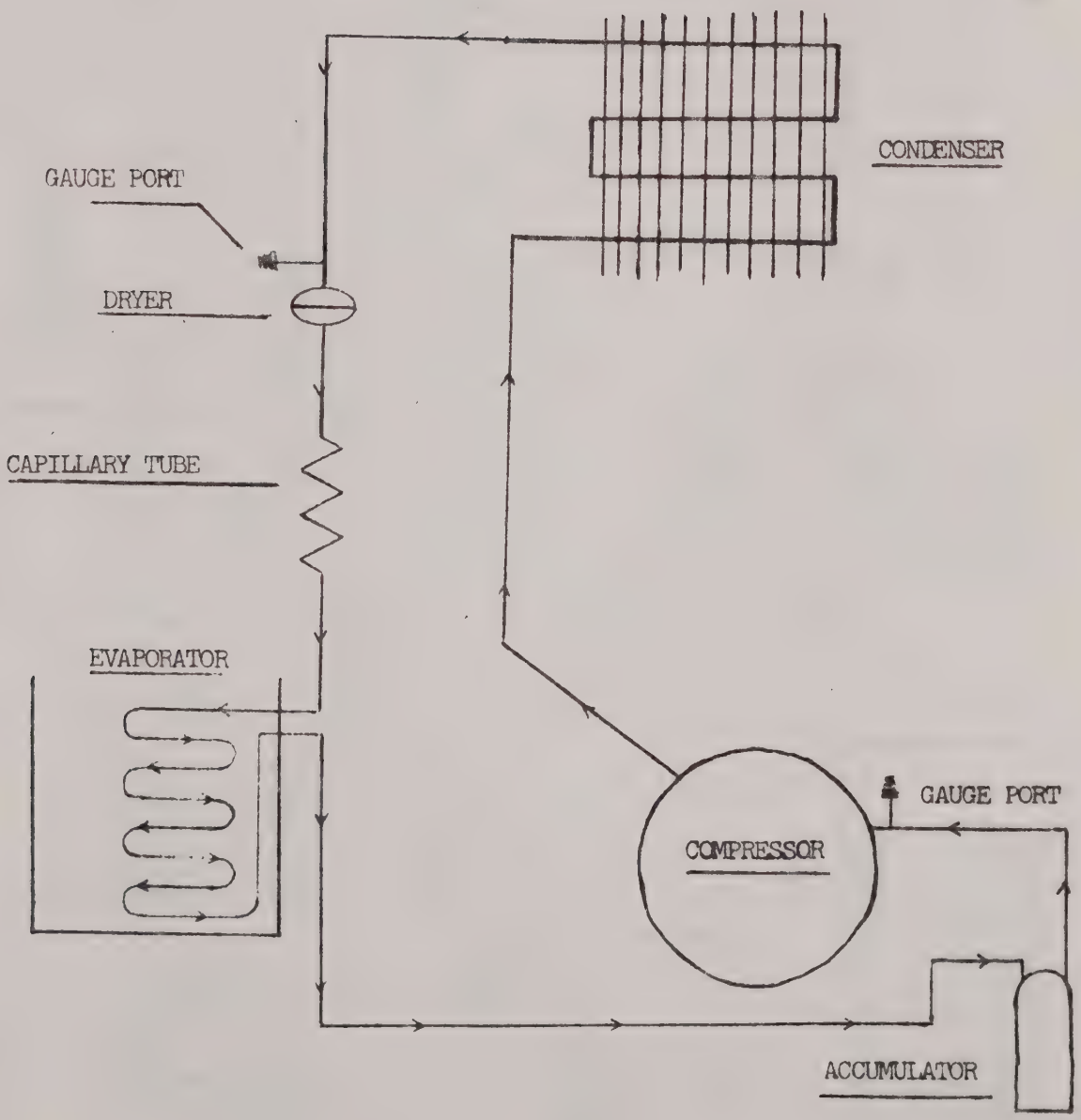
A. The Neslab RTE-4 and RTE-8 have been designed from a functional/use standpoint. Two switches and the temperature setting dials control all operations. When temperature control below 40°C to 45°C is desired, the compressor is switched "on". When operating above 40°C to 45°C, the compressor should be switched "off".

RTE

PARTS LIST

	115 Volt	220 V/50 Hz
Compressor	NG-202	NG-204
Condenser	NG-301	Same
Fan Motor	NG-401	NG-402
Fan Silencer	NG-415	Same
Fan Blade	NG-422	Same
Controller	NJ-234	NJ-235
Temperature Sensor	NJ-228	Same
Light (Heat) Red	NJ-317	NJ-319
Light (Power) Amber	NJ-372	NJ-385
Switch (Unit on/off)	NJ-312	Same
Switch (Cooling system)	NJ-312	Same
Circuit Breaker	NJ-361	NJ-360
Capacitor (Motor)	NJ-393	Same
Pump motor	NJ-388	Same
Heater (Stainless Steel)	NJ-458	NJ-459
Accumulator	NI-306	Same
Rubber Feet	NM-118	Same
Leveling Device for "Z" Type Pumps	NE-550	Same

RTE-4 & RTE-8 REFRIGERANT FLOW



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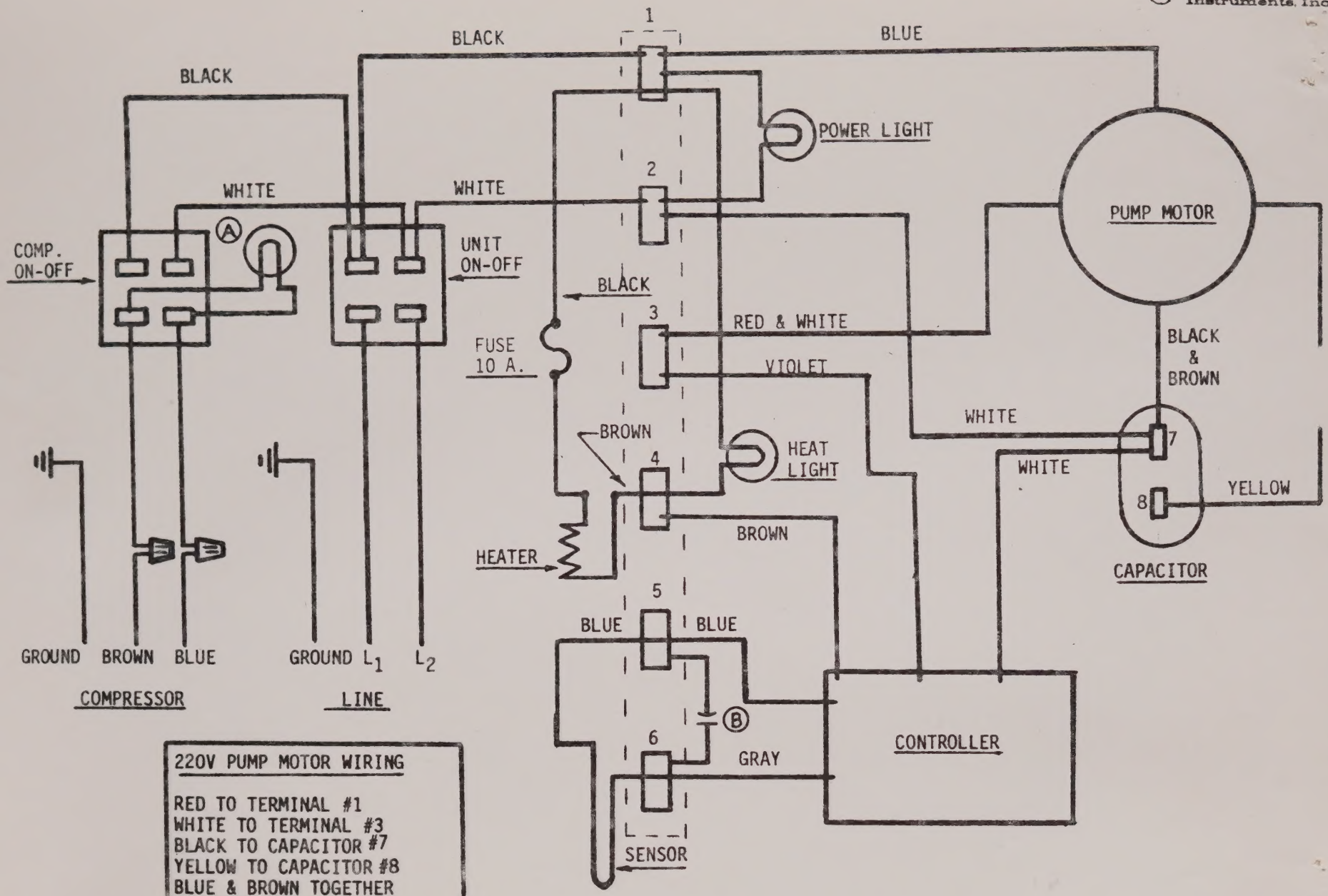
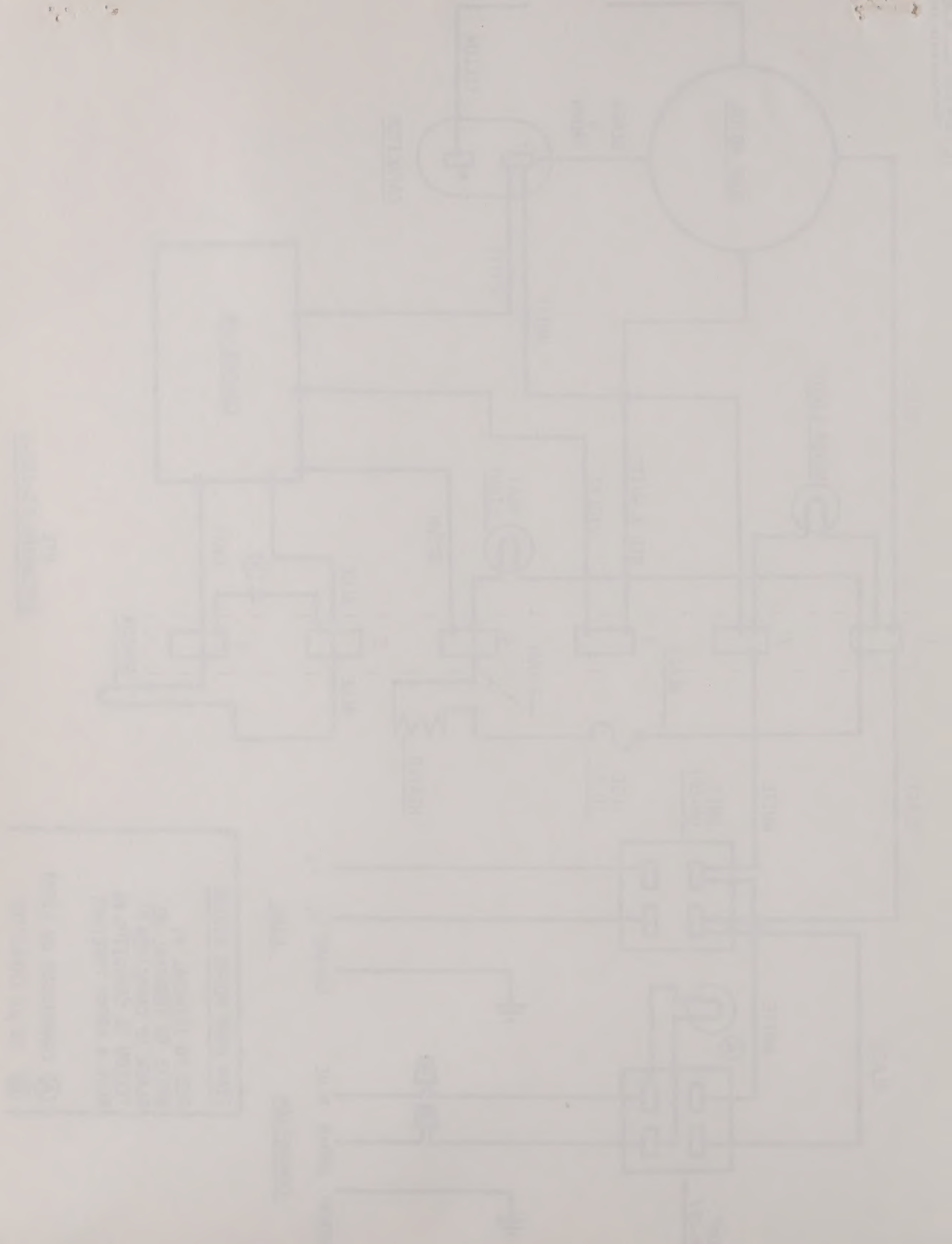


220V PUMP MOTOR WIRING

RED TO TERMINAL #1
WHITE TO TERMINAL #3
BLACK TO CAPACITOR #7
YELLOW TO CAPACITOR #8
BLUE & BROWN TOGETHER

(A) COMPRESSOR ON LIGHT
(B) .02 µf CAPACITOR

RTE
BEGINNING 7 D-262-1



MP MASTER
MA24672

NESLAB

Temperature Controlled Liquid Systems

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